Nutrition and Nutritional/Dietary Supplements

Stephanie A. Meyer, CPT, SP

What is a Nutritional/Dietary Supplement?

- A product (other than tobacco) intended to supplement the diet that bears or contains one or more of the following dietary ingredients: a vitamin, mineral, amino acid, herb or other botanical
- a dietary substance for use to supplement the diet by increasing the total dietary intake

What is a Nutritional/Dietary Supplement

- A concentrate, metabolite, constituent, extract, or combination of any ingredient described above
- Intended for ingestion in the form of a capsule, powder, soft gel or gel cap, and not represented as a conventional food or as a sole item of a meal or the diet.

reference: http:/

Dietary Supplement Health and Education Act (DSHEA) of 1994

- FDA used to regulate dietary supplements as foods to ensure safety and wholesomeness, as well as evaluate all new ingredients, including those used in dietary supplements
- DSHEA made it so that "…dietary ingredients used in dietary supplements are no longer subject to the premarket safety evaluations required of other new food ingredients or for new uses of old food ingredients…"

reference: http://vm.cfsan.fda.g

Bottom Line

- The FDA has little regulatory power over nutritional/dietary supplements
  Supplements are not tested for safety, potency, wholesomeness prior to being put on the shelves (exception is multivitamins which have the seal from the U.S. Pharmacopeia - USP - on the label)

www.fda.gov

What is Required?

- Cannot make specific health claims, only structure/function claims (promotes improved performance)
- Statement: “This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.”
- Labels listing contents of the supplement

From *The Health Professional’s Guide to Popular Dietary Supplements*

Types of Supplements

- Vitamins
- Minerals
- Botanicals
- Specialty supplements (amino acids, hormones, fish oil, performance enhancers)
- Meal supplements (protein drinks, shakes)

Who Needs Nutritional Supplements?

- In general, diet provides all the nutrients needed for optimal performance.
- Some people who don’t eat a balanced diet may need a multivitamin, but multivitamins do not provide energy. Vitamins and minerals are needed to help your body use the food you eat, getting energy from that food.

Some Nutritional Supplements

- Creatine
- Andro
- HMB
- Ephedra/Ma Huang (found in Ripped fuel, some diet supplements, energy boosters)

Creatine

- Probably increases strength for short term, high intensity exercises (weight lifting, sprinting)
- Does not improve aerobic exercise
- Possible adverse effects: dehydration, stomach pain, bloating, diarrhea, increased body weight (likely due to water, not muscle), muscle cramping
- Long term use (over 30 days) not advised because of limited research of effects

slide provided by
Maj George Dilly

Androstendione/Andro

- Few studies done, but one did not find increased muscle strength or size; take only under physician supervision
- In women may cause deepening of voice, increased facial hair, decreased breast size, genital enlargement
- In men, may stimulate breast development, reduced testicle size, increased blood cholesterol; may increase risk for cancerous prostate growth and accelerate male pattern baldness in older men

From *The Health Professional's Guide to Popular Dietary Supplements*

B-Hydroxy B-Methlybutyrate (HMB)

- Few studies, but those done show that HMB (taken 3g/d) increases strength and muscle mass in male, female and elderly exercisers (not effective without exercise)
- Studies also show that HMB might protect muscles from exercise-induced damage
- No long term studies (>8 weeks), so do not know long term effects (good or bad)

From *The Health Professional's Guide to Popular Dietary Supplements*

Ephedra/Ma Huang

- Found in Ripped Fuel, Herbal Fen-Phen, many other weight loss and “energy enhancing” supplements
- Considered Dangerous because FDA has compiled a list of more than 800 “adverse events” such as heart attack, stroke, tremors, insomnia, death; increases heart rate and blood pressure
- **FDA recommends avoiding**

From *Professional’s Handbook of Complementary and Alternative Medicines* and *The Health Professional’s Guide to Popular Dietary Supplements*

Supplements Considered **Unsafe/Dangerous**

- Chapparal - toxic to liver
- Comfrey - cirrhosis, death, banned in Australia, Germany, Canada and Great Britain
- Ephedra - high blood pressure crisis, stroke, irregular heart beat, death
- Lobelia - low blood pressure, rapid heart beat, coma, death
- Mandrake - hallucinogen

Supplements Considered Unsafe

- Pokeroot - stomach upset, death in children
- Sassafras - carcinogenic, liver toxic
- Senna - long-term use can cause electrolyte imbalance, heart and kidney implications
- Yohimbe - high blood pressure, seizures, death
- Pennyroyal - oil is toxic, 2 TBSP is deadly, coma, de

Protein Supplements/Shakes

- Generally safe, unless they contain any of the unsafe compounds listed above
- Generally are a waste of money - a balanced diet containing meat, eggs, fish, nuts/peanut butter, beans and dairy foods typically contains adequate protein; grains provide some plant protein as well
- Protein not needed by the body is either used for energy or stored as fat if energy not needed

Guidance

- Seek advice from a healthcare professional before taking any nutritional supplement - many herbs/supplements have the same action as prescription medications, or interact with prescription medications (example St. John's Wort may decrease effectiveness of birth control pills; interacts with some over the counter cold and flu medications, alcohol, narcotics, prescription anti-depressants)
- ***Pregnant and lactating women are advised not to take any nutritional supplements***

References

- Healthcare providers
- www.herbs.org
- www.onhealth.com
- www.odp.od.nih.gov/ods
- www.mayohealth.org
- www.eatright.org
- www.herbalgram.org
- http://vm.cfsan.fda.gov
- www.dsqi.org
- www.nal.usda.gov/fnic